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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/633,104	08/01/2003	Darel Emmot	10001767-1	4784
22879 7590 11/12/2009 HEWLETT-PACKARD COMPANY Intellectual Property Administration 3404 E. Harmony Road Mail Stop 35 FORT COLLINS, CO 80528			EXAMINER SWEARINGEN, JEFFREY R	
			ART UNIT 2445	PAPER NUMBER
			NOTIFICATION DATE 11/12/2009	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/633,104

**Applicant(s)**

EMMOT, DAREL

**Examiner**

Jeffrey R. Swearingen

**Art Unit**

2445

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SI/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Response to Arguments*

1. Applicant's arguments filed 6/30/09 have been fully considered but they are not persuasive.
2. Applicant argued Joseph in view of Afek failed to disclose *ascertaining a remaining communication length for the information for each of the plurality of other channels; determining a current demand for each of the plurality of other channels; and routing the information entering at the first channel to one of the plurality of other channels based upon an evaluation that considers a combination of the obtained priority information, the ascertained communication length for each of the plurality of other channels, and the current demand for each of the plurality of other channels*. Joseph looked at the length of a packet – *a remaining communication length for the information for each of the plurality of other channels*. Applicant did not limit *a remaining communication length for the information for each of the plurality of other channels* to exclude reading the length of a single packet. Applicant wishes communication length to be interpreted as a hop count, but Applicant failed to provide any evidence in the specification to limit communication to length to Applicant's desired reading. Afek measured link capacity – *a current demand for each of the plurality of other channels*. Joseph taught routing a packet based on a combination of obtained priority information, ascertained communication length, and current demand. A combination of this information can be as basic as 100% of the length, 0% of the demand, and 0% of the priority.

3. Applicant argued Joseph in view of Afek failed to disclose *determining a demand for channels coupled to remote nodes between a current node and a destination node and utilizing this priority information in determining a channel over which to route the information entering the at least one of the plurality of distributed switching nodes*. Afek measured the rates of sessions sharing a link in column 6, lines 25-47. Measuring the rates is determining the demand. Routing the information entering the nodes based on this information is akin to the back propagation taught in Afek.

4. Applicant argued Joseph in view of Afek failed to disclose *obtaining a destination node from a header portion of the information*. Joseph used TCP/IP packets. TCP/IP packets include a header which tells the origin node of the packet and the destination node of the packet in order to accurately route the packet to its destination. "In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990). "[T]he PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his [or her] claimed product. Whether the rejection is based on inherency' under 35 U.S.C. 102, on prima facie obviousness' under 35 U.S.C. 103, jointly or alternatively, the burden of proof is the same...[footnote omitted]." The burden of proof is similar to that required with respect to product-by-process claims. In re Fitzgerald, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980) (quoting In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977)). The examiner has provided a

statement in fact – TCP/IP packets have headers which disclose the destination node of a packet. Applicant failed to provide any evidence showing how one of ordinary skill in the art would not be aware that a TCP/IP packet contained a header which indicated a destination node of the packet.

5. Applicant argued Joseph in view of Afek failed to disclose *ascertaining the remaining communication length comprises receiving and evaluating network information communicated from other nodes in the network*. Afek disclosed link capacity from other nodes and sent it through the network. This is *receiving and evaluating network information communicated from other nodes in the network*.

6. Applicant argued no motivation was provided for claim 10. Joseph and Afek both disclosed priority information, communication length, and demand. The combination of Joseph and Afek looked at all three factors in deciding how to route packets. It would have been obvious to one of ordinary skill in the art to either balance these factors, or not balance these factors, based on how one of ordinary skill in the art wished to place importance on these three factors for the individual system design. This is the articulated reasoning with rational underpinning dictated by KSR. One user may wish to balance all three factors therefore considering priority of packets, size of packets, and network demand, and one user may wish to only look at priority as a Quality of Service issue only serving the highest paying users.

7. Applicant argued no motivation was provided for claim 11. Joseph and Afek both disclosed priority information, communication length, and demand. The combination of Joseph and Afek looked at all three factors in deciding how to route packets. It would

have been obvious to one of ordinary skill in the art to either balance these factors, or not balance these factors, based on how one of ordinary skill in the art wished to place importance on these three factors for the individual system design. This is the articulated reasoning with rational underpinning dictated by KSR. One user may wish to balance all three factors therefore considering priority of packets, size of packets, and network demand, and one user may wish to only look at priority as a Quality of Service issue only serving the highest paying users.

8. Applicant argued Joseph in view of Afek failed to disclose *ascertaining a remaining communication length for the information entering the node for each of the plurality of other channels; routing the information entering at one of the other channels to the first channel based upon an evaluation that considers a combination of the obtained priority information for each of the plurality of other channels, the ascertained communication length for each of the plurality of other channels, and the current demand for the first channel*. Joseph looked at the length of a packet – *a remaining communication length for the information for each of the plurality of other channels*. Applicant did not limit *a remaining communication length for the information for each of the plurality of other channels* to exclude reading the length of a single packet. Applicant wishes communication length to be interpreted as a hop count, but Applicant failed to provide any evidence in the specification to limit communication to length to Applicant's desired reading. Afek measured link capacity – *a current demand for each of the plurality of other channels*. Joseph taught routing a packet based on a combination of obtained priority information, ascertained communication length, and

current demand. A combination of this information can be as basic as 100% of the length, 0% of the demand, and 0% of the priority.

9. Applicant argued that Joseph in view of Afek failed to disclose *determining a demand for channels coupled to remote nodes between a current node and a destination node and utilizing this information in determining a channel over which to route the information entering the at least one of the plurality of distributed switching nodes*. Afek taught measuring demand of nodes. Afek measured the rates of sessions sharing a link in column 6, lines 25-47. Measuring the rates is determining the demand. Routing the information entering the nodes based on this information is akin to the back propagation taught in Afek.

10. Applicant argued no motivation was provided for claim 19. Joseph and Afek both disclosed priority information, communication length, and demand. The combination of Joseph and Afek looked at all three factors in deciding how to route packets. It would have been obvious to one of ordinary skill in the art to either balance these factors, or not balance these factors, based on how one of ordinary skill in the art wished to place importance on these three factors for the individual system design. This is the articulated reasoning with rational underpinning dictated by KSR. One user may wish to balance all three factors therefore considering priority of packets, size of packets, and network demand, and one user may wish to only look at priority as a Quality of Service issue only serving the highest paying users.

11. Applicant argued no motivation was provided for claim 20. Joseph and Afek both disclosed priority information, communication length, and demand. The combination of

Joseph and Afek looked at all three factors in deciding how to route packets. It would have been obvious to one of ordinary skill in the art to either balance these factors, or not balance these factors, based on how one of ordinary skill in the art wished to place importance on these three factors for the individual system design. This is the articulated reasoning with rational underpinning dictated by KSR. One user may wish to balance all three factors therefore considering priority of packets, size of packets, and network demand, and one user may wish to only look at priority as a Quality of Service issue only serving the highest paying users.

12. Applicant argued Joseph in view of Afek failed to disclose *logic configured to ascertain a remaining communication length for the information for each of the plurality of other channels; logic configured to determine a current demand for each of the plurality of other channels; and logic configured to route the information entering at the first channel to one of the other channels based upon an evaluation that considers a combination of the obtained priority information, the ascertained communication length for each of the plurality of other channels, and the current demand for each of the plurality of other channels*. Joseph looked at the length of a packet – *a remaining communication length for the information for each of the plurality of other channels*. Applicant did not limit *a remaining communication length for the information for each of the plurality of other channels* to exclude reading the length of a single packet. Afek measured link capacity – *a current demand for each of the plurality of other channels*. Applicant wishes communication length to be interpreted as a hop count, but Applicant failed to provide any evidence in the specification to limit communication to length to



Applicant's desired reading. Joseph taught routing a packet based on a combination of obtained priority information, ascertained communication length, and current demand.

A combination of this information can be as basic as 100% of the length, 0% of the demand, and 0% of the priority.

13. Applicant argued Joseph in view of Afek in view of Katsube failed to disclose *ascertaining the remaining communication length more specifically comprises ascertaining a quantifiable identification of a number of intermediate nodes that the information will traverse before reaching a destination node*. Katsube taught a hop count. The hop count is the number of nodes through which the packet has passed. If the TTL field has exceeded the number allowed, then the packet has exceeded the *quantifiable identification of a number of intermediate nodes that the information will traverse before reaching a destination node*.

### ***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 1-3, 5-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Joseph et al. (US 6,628,615) in view of Afek et al. (US 5,748,901).

16. Claim 1 states *in a multi-node network comprising a plurality of distributed switching nodes, a method implemented in at least one of the plurality of distributed switching nodes for routing information entering the at least one of the plurality of*

*distributed switching nodes over a first channel to one of a plurality of other channels, the method comprising: obtaining priority information for the information; ascertaining a remaining communication length for the information for each of the plurality of other channels; determining a current demand for each of the plurality of other channels; and routing the information entering at the first channel to one of the plurality of other channels based upon an evaluation that considers a combination of the obtained priority information, the ascertained communication length for each of the plurality of other channels, and the current demand for each of the plurality of other channels.*

17. Joseph is a system for communicating messages between nodes of a packet switched communications network. Joseph, Abstract. Joseph looks at the priority of the message. Joseph, column 4, line 51. Joseph looks at the length of the packet being transmitted. Joseph, column 4, lines 54-67 - software configurable length "M". The length "M" is used to determine the message class. Joseph, column 5, lines 1-8. The routing and forwarding of packets to a specific channel in Joseph is performed based upon the priority of a message, and the class of the message. Joseph, column 5, lines 8-15.

18. Joseph failed to disclose routing packets to various channels based upon a current demand for channels.

19. Afek is a routing algorithm for flow control. Afek, column 5, line 65. Afek's algorithm measures the amount of unused link capacity to limit session rates. Afek, column 6, lines 25-32. Afek counts the number of cells arriving over a period of time. Afek, column 6, lines 35-40. Afek adjusts session rates based upon available capacity.

Afek, column 7, lines 20-26. Afek is designed for both ATM and TCP networks. Afek, column 7, line 55.

20. It would have been obvious to one of ordinary skill in the art at the time of invention to route based upon both the Joseph and Afek systems. It would have been obvious to one of ordinary skill in the art at the time of invention to adapt Joseph to use Afek in order to allow for the best use of transmission of bandwidth sensitive information (Joseph, column 3, lines 9-12, lines 55-60), (Afek, column 5, lines 35-61).

21. In regard to claim 2, Afek further disclosed determining a demand for channels coupled to remote nodes between a current node and a destination node and utilizing this priority information in determining a channel over which to route the information entering the at least one of the plurality of distributed switching nodes. Afek measures amount of unused link capacity. Afek, column 6, lines 25-32. The implementation of Afek over a network involves back pressure on the previous routers, and any demand on remote nodes would be propagated backward using Afek to all prior nodes.

22. In regard to claim 3, Joseph disclosed obtaining a destination node from a header portion of the information. Joseph disclosed transmitting packets over a channel. Joseph, column 4, lines 39-42. It is inherent to Joseph that in order to transmit a packet to its destination, that Joseph would look to the header of the packet since the packet would state the origin and destination addresses of the packet for routing.

23. In regard to claim 5, Joseph further disclosed retrieving a priority indicator from a header portion of the information. Joseph, column 4, line 51.

24. In regard to claim 6, Joseph further disclosed obtaining priority information more specifically comprises evaluating a payload portion of the information. Joseph, column 5, lines 1-8 – the length of the packet is evaluating the payload of the information.

25. In regard to claim 7, Afek further disclosed ascertaining the remaining communication length comprises receiving and evaluating network information communicated from other nodes in the network. Afek, column 6, lines 25-32 disclosed the back pressure exertion of current bandwidth capacity on previous nodes. As the bandwidth is changed in Afek, prior routers are notified of the changes in bandwidth capacity for each node - receiving and evaluating information communicated from other nodes in the network.

26. In regard to claim 8, Joseph further disclosed ascertaining the remaining communication length comprises computing the communication length based on a priori information about the network. Joseph used a software agent which referenced a connection state table. Joseph, column 5, line 34. The connection state table is a priori information about the network.

27. In regard to claim 9, Afek further disclosed determining the current demand for each of the plurality of other channels comprises evaluating a state of an output queue for each of the other channels. Afek, column 8, lines 35-54 disclose using the Afek algorithm with current queue conditions and parameters.

28. In regard to claim 10, Afek and Joseph as described in claim 1 taught priority information, ascertained communication length, and current demand. It would have been obvious to one of ordinary skill in the art at the time of invention to substantially

balance all three of these factors when routing information to treat each factor with equal importance as best needed for system requirements.

29. In regard to claim 11, Afek and Joseph as described in claim 1 taught priority information, ascertained communication length, and current demand. It would have been obvious to one of ordinary skill in the art at the time of invention to make one of these factors weighted more than the others when routing information based on system requirements.

30. In regard to claim 12, Joseph disclosed the information is embodied in a packet. Column 5, lines 43-51 disclose using the information in a packet.

31. In regard to claim 13, Joseph disclosed the information is embodied in a flit. Column 6, lines 3-22 disclose using information in a flit.

32. In regard to claim 14, Joseph disclosed the information is embodied in a plurality of flits that collectively comprise an information packet. Joseph, column 6, lines 3-22 where the flits comprise a packet.

33. In regard to claim 15, Joseph disclosed routing is performed on a per-flit basis. Joseph, column 6, lines 59-67.

34. In regard to claim 16, Joseph disclosed the routing is performed on a first flit, and remaining flits in information packet are routed to the same other channel as the first flit. Joseph, column 7, lines 1-33 describes breaking the packet into flits and sending the flits to a specific channel.

35. Claim 17 is the egress equivalent of the ingress method of claim 1, and the rejection of claim 1 is applicable to claim 17.

36. Claim 18 is the egress equivalent of the ingress method of claim 2, and the rejection of claim 2 is applicable to claim 18.
37. Claim 19 is the egress equivalent of the ingress method of claim 10, and the rejection of claim 10 is applicable to claim 19.
38. Claim 20 is the egress equivalent of the ingress method of claim 11, and the rejection of claim 11 is applicable to claim 20.
39. Claim 21 is substantially the same as claim 1.
40. Claim 22 is substantially the same as claim 10.
41. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Joseph in view of Afek as applied to claim 1 above, and further in view of Katsube et al. (US 6,501,756).
42. In regard to claim 4, Joseph in view of Afek failed to disclose ascertaining a quantifiable identification of a number of intermediate nodes that the information will traverse before reaching a destination node. However, Katsube taught disclosing the hop count of a packet - a quantifiable identification of a number of intermediate nodes that the information will traverse before reaching a destination node. Katsube, column 3, lines 39-49. It would have been obvious to one of ordinary skill in the art at the time of invention to use a hop count with the Joseph/Afek combination to prevent sending traffic over unnecessarily long paths on a network.

### ***Conclusion***

43. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey R. Swearingen whose telephone number is (571)272-3921. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivek Srivastava can be reached on 571-272-7304. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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